

Date: Thursday, 10/04/2008 4:00:30 PM  
 User: Julie Lecocq

## Process Sheet

|                       |   |  |  |                  |                                      |  |  |
|-----------------------|---|--|--|------------------|--------------------------------------|--|--|
| Customer              | : CU-DAR001 Dart Helicopters Services   |  |  | Drawing Name     | : MOUNTING BRACKET                   |  |  |
| Job Number            | : 38531   |  |  | Part Number      | : D2053                              |  |  |
| Estimate Number       | : 10250   |  |  | Drawing Number   | : D2053 <del>08/04/11</del> 08.04.11 |  |  |
| P.O. Number           | :   |  |  | Project Number   | : N/A                                |  |  |
| This Issue            | : 10/04/2008 S.O. No. :   |  |  | Drawing Revision | : U/R                                |  |  |
| Prsht Rev.            | : NC  |  |  | Material         | :                                    |  |  |
| First Issue           | : / / Type : MACHINED PARTS   |  |  | Due Date         | : 05/05/2008 Qty: 30 Um: Each        |  |  |
| Previous Run          | : 35362   |  |  |                  |                                      |  |  |
| Written By            | :   |  |  |                  |                                      |  |  |
| Checked & Approved By | : JD 08.4.10  |  |  |                  |                                      |  |  |
| Comment               | : Est D 02.03.18 Added Rev.B NG<br>(Issue this IPP with part number D2052)<br>Est Rev E now water jet 07-10-25 DD |  |  |                  |                                      |  |  |

## Additional Product

|             |  |   |   |
|-------------|--|---|---|
| Job Number: |   |   |   |
| Seq. #:     | Machine Or Operation:  | Description :   |   |
| 1.0         | M5052H32S090   |  |    |
|             | Comment: Qty.: 0.04043 sf(s)/Unit Total : 1.21275 sf(s)<br>Material: 5052-H32, 0.090" Thick<br>(M5052H3S.090)<br>Batch: 100785 | HB 8-4-15   |   |
| 2.0         | WATER JET  | FLOW WATER JET  |  |
|             | Comment: FLOW WATER JET<br>1-Cut as per Dwg D2053<br>Dwg Rev: u/R<br>Prog Rev: u/R   | HB 8-4-15   | (46)  |
|             | 2-Deburr if necessary  | RJ 08/04/22   | SB (46)   |
| 3.0         | QC2  | INSPECT PARTS AS THEY COME OFF MACHINE  |  |
|             | Comment: INSPECT PARTS AS THEY COME OFF MACHINE  | HB 8-4-15   |   |
| 4.0         | QC8  | SECOND CHECK  |  |
|             | Comment: SECOND CHECK  | C 08/04/22 (44G)  |   |
| 5.0         | BRAKE NC   | NC BRAKE  |  |
|             | Comment: NC BRAKE<br>Form as per Dwg D2053 using CNC Brake   | SB 08/05/01   | (PJD) → (46)  |

| W/O:     |      | WORK ORDER CHANGES   |    |          |     |                                     |                          |
|----------|------|--|----|----------|-----|-------------------------------------|--------------------------|
| DATE     | STEP | PROCEDURE CHANGE   | By | Date     | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
| 08.04.22 | 4    | <p><del>1211</del></p> <ul style="list-style-type: none"> <li>Remove QTY (2) <math>\varnothing 0.213</math> holes</li> <li>Drill <math>\varnothing 0.098</math> @ 1.40 and 0.40</li> </ul> <p>AS per Drawing -</p> | FF | 08/04/30 | 46  | KL<br>QSI<br>042<br>08.04.22        | G<br>08/05/21            |
|          |      |  |    |          |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

NOTE: Date & initial all entries

Date: Thursday, 10/04/2008 4:00:30 PM  
User: Julie Lecocq

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MOUNTING BRACKET

Job Number: 38531

Part Number: D2053

Job Number:



Seq. #: Machine Or Operation:

Description :

6.0 QC5

INSPECT WORK TO CURRENT STEP



S 08/05/08 46

Comment: INSPECT WORK TO CURRENT STEP

7.0 HAND FINISHING1

HAND FINISHING RESOURCE #1



46X

Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005

8.0 POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat Black Sandtex (Ref 4.3.5.8) as per QSI 005 4.3

9.0 QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT

10.0 PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: 9

11.0 QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



MF 08-05-05

| W/O: |      | WORK ORDER CHANGES |  |  |    |      |     |                                     |                          |
|------|------|--------------------|--|--|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   |  |  | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |  |  |    |      |     |                                     |                          |
|      |      |                    |  |  |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

NOTE: Date & initial all entries



|                     |                       |   |                        |  |
|---------------------|-----------------------|---|------------------------|--|
| DESIGN<br><i>#</i>  | DRAWN BY<br><i>RF</i> | DART AEROSPACE LTD.<br>HAWKESBURY, ONTARIO, CANADA  |                        |  |
| CHECKED<br><i>#</i> | APPROVED<br><i>#</i>  | DRAWING NO.<br>D2053                                | REV. B<br>SHEET 1 OF 1 |  |
| DATE<br>02.03.12    |                       | TITLE<br>BRACKET                                    | SCALE<br>1:1           |  |
| A                   | 92.01.12              | NEW ISSUE   |                        |  |
| B                   | 02.03.12              | $\phi 0.635$ WAS $\phi 0.437$ ; $0.635$ WAS $0.325$ |                        |  |

RELEASER  
OL-03-13

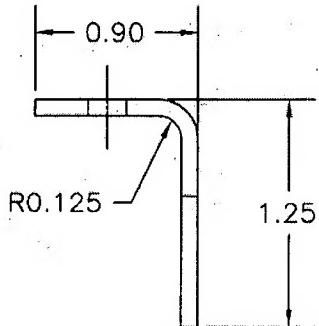
OL.03.13

~~UNDER REVIEW~~

~~Test~~ 25.08.30

~~✓ D-213 MAY COME  
OUT ? check with  
DAVID~~  
REMOVE HOLES

REMOVE HOLES



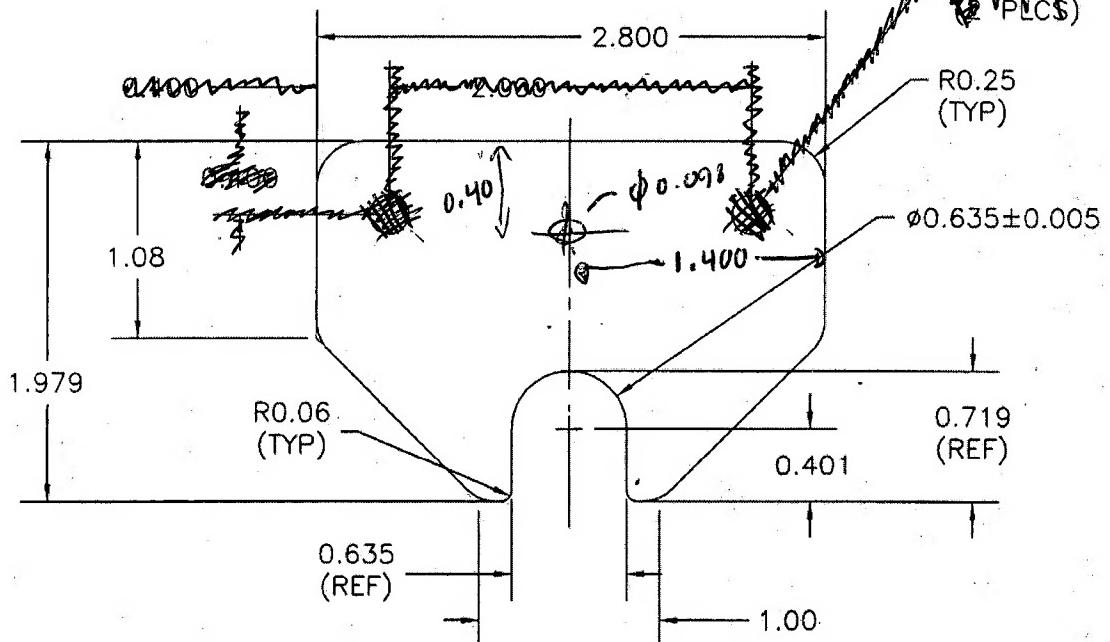
SHOP COPY  
RETURN TO  
ENGINEERING  
  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 38531

D2053 BRACKET

REMOVE HOLES

08.04.11

13  
P.C.



D2053 FLAT PATTERN

MATERIAL: 5052-H32/-34 PER AMS 4016/4017 OR QQ-A-250/8, 0.090 THICK  
FINISH: POWDER COAT BLACK SANTEX (4.3.5.7) PER DART QSI 005 4.3  
TOLERANCES ARE PER DART QSI 0.18 UNLESS OTHERWISE NOTED  
ALL DIMENSIONS ARE IN INCHES

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|                                |              |             |
|--------------------------------|--------------|-------------|
| SART AEROSPACE LTD             | Work Order:  | 3853        |
| Description: MOUNTING BRACKET  | Part Number: | D2053       |
| Inspection Dwg: D2053 Rev: U/R |              | Page 1 of 1 |

## **FIRST ARTICLE INSPECTION CHECKLIST**

X First Article      Prototype

|              |        |             |          |                     |     |
|--------------|--------|-------------|----------|---------------------|-----|
| Measured by: | HB     | Audited by: |          | Prototype Approval: | N/A |
| Date:        | 8-4-15 | Date:       | 08/08/15 | Date:               |     |

| Rev | Date | Change    | Revised by | Approved |
|-----|------|-----------|------------|----------|
| A   |      | New Issue | KJ/JLM     |          |

## Peter Hum

---

**From:** David Shepherd [dshepherd@dartaero.com]  
**Sent:** April 27, 2008 1:17 AM  
**To:** 'Peter Hum'  
**Cc:** 'Mike Petsche'  
**Subject:** RE: D206-558 -> D2053 Bracket

Peter,

As discussed, the changes are acceptable for the batch that is being made.

Can we update the drawing right away to match production?  
This is the second time I've had this request.  
I got the first request several months ago from Marc.

David

---

**From:** Peter Hum [mailto:[phum@dartaero.com](mailto:phum@dartaero.com)]  
**Sent:** Friday, April 25, 2008 9:13 AM  
**To:** David Shepherd  
**Subject:** FW: D206-558 -> D2053 Bracket

David,

Per our phone conversation, I have clarified the location of the 0.098" hole (see attached) to be added. As previously discussed, the 0.213" holes are removed and will be drilled by the customer.

Peter

---

**From:** Peter Hum [mailto:[phum@dartaero.com](mailto:phum@dartaero.com)]  
**Sent:** April 23, 2008 8:36 AM  
**To:** 'David Shepherd'  
**Cc:** 'Chris Provencal'  
**Subject:** FW: D206-558 -> D2053 Bracket  
**Importance:** High

Production is making a new batch of D2053.

It seems like the last production of these parts had a 0.098" hole drilled on the centerline to allow the finishing to hang the piece for powder coating. However, the last work order has been misplaced.

Therefore, is it acceptable to drill the 0.098" hole as shown in the attached sketch? Chris or myself does not have delegation to sign off this change.

Peter

---

**From:** Marc Bellavance [mailto:[mbellavance@dartaero.com](mailto:mbellavance@dartaero.com)]  
**Sent:** April 22, 2008 2:25 PM  
**To:** 'Peter Hum'  
**Cc:** 'Jason Murdoch'  
**Subject:** FW: D206-558 -> D2053 Bracket  
**Importance:** High

28/04/2008

Peter, FYI...

Murdoch, don't waste your time reading this shit, it's for your buddy Eric D.

**Marc Bellavance**  
**Mechanical Designer/Technical Support**

**DART aerospace Ltd.**

Tel: 613-632-5200 Ext. 240  
Fax: 613-632-9311  
E-mail: [mbellavance@dartaero.com](mailto:mbellavance@dartaero.com)  
Web: [www.dartaero.com](http://www.dartaero.com)

---

**From:** David Shepherd [mailto:[dshepherd@dartaero.com](mailto:dshepherd@dartaero.com)]  
**Sent:** November 1, 2007 2:49 PM  
**To:** 'Marc Bellavance'  
**Subject:** RE: D206-558 -> D2053 Bracket

Recommend making parts without holes from now on.

David

---

**From:** Marc Bellavance [mailto:[mbellavance@dartaero.com](mailto:mbellavance@dartaero.com)]  
**Sent:** Thursday, November 01, 2007 9:57 AM  
**To:** 'David Shepherd'  
**Subject:** D206-558 -> D2053 Bracket  
**Importance:** High

David,

I got an e-mail from David Duval asking for D2053 Rev. B DXF file.  
He needs this to create the waterjet program to manufacture the flat pattern of the part.

Looking at the drawing, I have noticed that it is under review... since August 2005.  
Roberto put it under review and he added this note: "Ø0.213 may come out? Check with David".

I have looked at D206-558 Installation Instructions.  
The instructions to install the D2053 bracket indicate to pick up on existing nut plates (see page 4, note 3) but it is not specified whether the installer is required to drill holes through D2053 or not. I'm assuming that the holes must be there already.

Was there any plan to remove the holes?  
If this is the case, we would need to update the IIN accordingly.  
We might also need to update the ICA as well.

**Marc Bellavance**  
**Internal Support/Product Improvement**

**DART aerospace Ltd.**

Tel: 613-632-5200 Ext. 240  
Fax: 613-632-9311  
E-mail: [mbellavance@dartaero.com](mailto:mbellavance@dartaero.com)  
Web: [www.dartaero.com](http://www.dartaero.com)

No virus found in this incoming message.

Checked by AVG Free Edition.

Version: 7.5.503 / Virus Database: 269.15.17/1103 - Release Date: 11/1/2007 6:01 AM

No virus found in this outgoing message.

Checked by AVG Free Edition.

Version: 7.5.503 / Virus Database: 269.15.17/1103 - Release Date: 11/1/2007 6:01 AM

No virus found in this incoming message.

Checked by AVG.

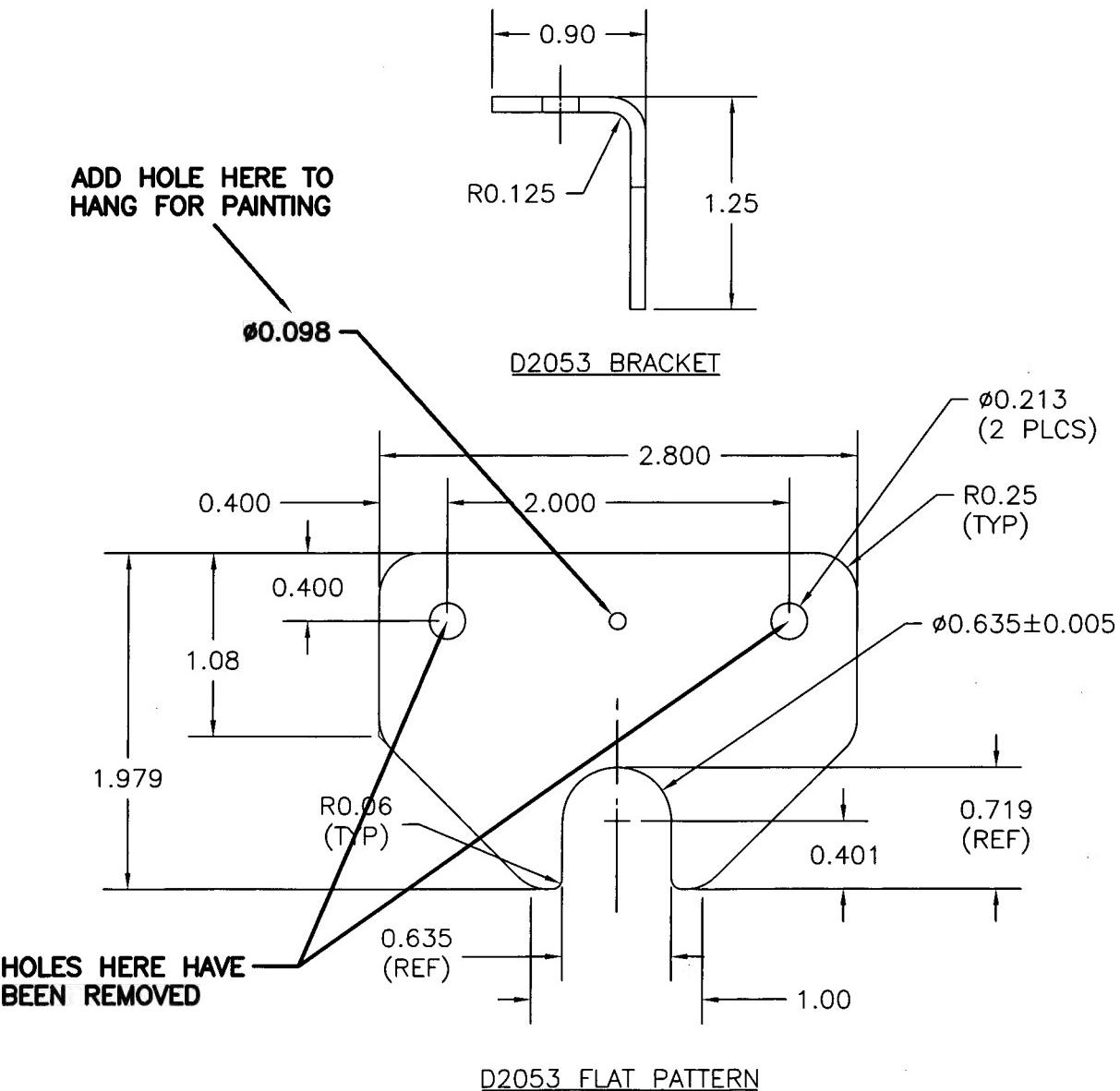
Version: 7.5.524 / Virus Database: 269.23.5/1399 - Release Date: 4/26/2008 2:17 PM

No virus found in this outgoing message.

Checked by AVG.

Version: 7.5.524 / Virus Database: 269.23.5/1399 - Release Date: 4/26/2008 2:17 PM

|          |          |   |              |
|----------|----------|---|--------------|
| DESIGN   | DRAWN BY | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA |              |
| CHECKED  | APPROVED | DRAWING NO.                                       | REV. B       |
|          |          | D2053   | SHEET 1 OF 1 |
| DATE     | TITLE    |   | SCALE        |
| 02.03.12 | BRACKET  |   | 1:1          |
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MATERIAL: 5052-H32/-34 PER AMS 4016/4017 OR QQ-A-250/8, 0.090 THICK

FINISH: POWDER COAT BLACK SANTEX (4.3.5.7) PER DART QSI 005 4.3

TOLERANCES ARE PER DART QSI 0.18 UNLESS OTHERWISE NOTED

ALL DIMENSIONS ARE IN INCHES

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